

# Differentiated Instruction in Improving Reading Performance in Multigrade Classroom: Cases in Apao Elementary School, Tineg, Abra

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## Abstract

This quasi-experimental study investigated the effectiveness of two differentiated instruction strategies—Strategy 1 (Teach all groups together) and Strategy 2 (Teach one grade while others work)—in improving the reading performance of nine Grade 5 and Grade 6 multigrade learners at Apao Elementary School, Tineg, Abra, during School Year 2025-2026. Both strategies utilized graphic organizers and story maps as scaffolding tools to enhance vocabulary, noting details, and inferential skills.

A pretest-post-test design was employed using validated reading passages aligned with DepEd's PHIL-IRI and DRAT materials. Results revealed that both strategies produced significant gains in reading performance. Strategy 1 (Teach all groups together) yielded consistently higher post-test means and more statistically significant improvements across vocabulary and overall reading performance compared to Strategy 2. Paired t-tests showed significant differences between pretest and post-test scores in four out of five stories for both strategies. Independent t-tests further confirmed that Strategy 1 was significantly more effective than Strategy 2 in most stories, particularly in developing vocabulary and integrated comprehension.

The findings affirm that differentiated instruction, when supported by visual scaffolding tools such as graphic organizers and story maps, effectively addresses the diverse reading needs of learners in multigrade classrooms. Strategy 1 proved superior in fostering collaborative learning and equitable skill development.

This study provides practical evidence and recommendations for teachers, school heads, and the Department of Education on optimizing differentiated instruction to improve reading proficiency in multigrade settings.

**Keywords:** *differentiated instruction, reading performance, vocabulary, noting details, inferential skills*

## Introduction

Reading serves as a foundational skill for academic success, critical thinking, and lifelong learning, yet many learners in multigrade classrooms in remote Philippine schools like Apao Elementary School in Tineg, Abra, struggle with vocabulary, noting details, and inferential comprehension. This quasi-experimental study examined the effectiveness of two differentiated instruction strategies—Strategy 1 (teaching all groups together) and Strategy 2 (teaching one grade while others work)—supported by graphic organizers and story maps, among nine Grade 5 and Grade 6 learners during School Year 2025-2026. The research addressed persistent reading challenges exacerbated by multigrade settings, diverse learner needs, and limited resources, aiming to provide evidence-based practices for improving reading performance.

In multigrade classrooms, teachers face the complex task of addressing varying reading abilities simultaneously, often resulting in gaps in foundational skills. At Apao Elementary School, PHIL-IRI data showed high frustration levels in reading, compounded by post-pandemic learning losses and resource constraints typical in rural areas. The rationale for this study stems from the need for practical, differentiated approaches using visual scaffolds like graphic organizers and story maps to support vocabulary development, detail recognition, and inference-making. These strategies align with real classroom demands, offering equitable opportunities for collaborative and independent learning while optimizing limited instructional time.

The study is grounded in Vygotsky's Sociocultural Theory and Zone of Proximal Development (1978), which underscore scaffolding and peer collaboration, complemented by Tomlinson's Differentiated Instruction framework (2014) and Tomlinson and Moon (2014) for addressing learner diversity in multigrade settings. Research by Walpole and McKenna (2007), Duke and Pearson (2002), McLaughlin (2015), and He and Deocampo (2023) highlights the efficacy of graphic organizers and story maps in enhancing vocabulary, noting details, and inferential skills. Supporting studies include McCollin et al. (2009), Morrison et al. (2022), Blaz (2023), and Adebisi (2024) on differentiated strategies, while local and international evidence from Wani and Ismail (2024), Zhou (2024), OECD PISA (2023), and EDCOM 2 (Mariposa and Bautista, 2023) document persistent reading challenges in the Philippines, particularly in multigrade contexts, validating targeted visual scaffolding interventions.

Despite various school reading programs, learners at Apao Elementary School continued to exhibit moderate to low performance in reading comprehension, especially in vocabulary, noting details, and making inferences. Multigrade teachers struggle to provide focused instruction amid diverse needs and time constraints. This study specifically investigated whether differentiated strategies, when paired with scaffolding tools, could significantly improve reading outcomes and which approach—whole-group or rotational—proved more effective across the targeted skills.

The primary objective was to determine the effectiveness of the two differentiated instruction strategies in improving reading performance. Specific objectives included assessing pretest and post-test levels in vocabulary, noting details, and inferential skills; examining

significant differences between pretest and post-test scores for each strategy; and comparing the relative effectiveness of Strategy 1 versus Strategy 2 on overall and skill-specific gains.

It was hypothesized that there would be significant differences between pretest and post-test scores following implementation of both strategies, and that a significant difference would exist between the mean scores when learners were grouped according to the two differentiated approaches, with Strategy 1 (teaching all groups together) expected to yield superior gains due to enhanced collaboration and equitable scaffolding.

## **Materials and Methods**

This study employed a quantitative research methodology utilizing both descriptive and quasi-experimental pretest-posttest designs to evaluate the effects of differentiated instruction strategies on reading performance. A pretest was administered to establish baseline reading abilities, followed by sequential implementation of two intervention strategies, and corresponding post-tests to measure gains in vocabulary, noting details, and inferential skills.

The study involved a purposive sample of nine multigrade learners (five males and four females) from Grades 5 and 6 at Apao Elementary School in Tinig, Abra, during School Year 2025-2026. These participants represented the entire multigrade class in this remote rural school, where combined-grade teaching is standard due to low enrollment.

Data were gathered using validated researcher-made pretest and parallel post-test instruments consisting of five reading passages each, adapted from DepEd's PHIL-IRI and DRAT materials, supplemented by DepEd-endorsed textbooks. Each passage included ten questions (three on vocabulary with denotative/connotative focus, four on noting details, and three on inferential skills). Ten validated lesson plans (five per strategy) incorporating graphic organizers and story maps as scaffolding tools were also utilized.

After securing permissions from school authorities and parental consent, a pretest was conducted, followed by Strategy 1 intervention (teaching all groups together) over seven school days, a post-test, then Strategy 2 (teaching one grade while others work) with its post-test. Descriptive statistics (weighted means and qualitative descriptors) were used to determine performance levels, while paired t-tests assessed within-strategy gains and independent t-tests compared the effectiveness of the two strategies.

## Results

**Table 1. Level of Reading Performance Before the Implementation of Strategies**

| STOR<br>Y | Reading Skills   |    |                |    |           |    |            |    |
|-----------|------------------|----|----------------|----|-----------|----|------------|----|
|           | Vocabulary Skill |    | Noting Details |    | Inferring |    | As a Whole |    |
|           | Mean             | DR | Mean           | DR | Mean      | DR | Mean       | DR |
| 1         | 79.00            | FS | 88.00          | VS | 77.78     | FS | 81.59      | S  |
| 2         | 84.78            | VS | 91.56          | O  | 93.00     | O  | 89.78      | O  |
| 3         | 80.11            | S  | 86.67          | VS | 77.78     | FS | 81.52      | S  |
| 4         | 77.78            | FS | 83.56          | S  | 91.78     | O  | 84.37      | S  |
| 5         | 77.78            | FS | 91.56          | O  | 90.67     | O  | 86.67      | VS |

*Norms:*

| <i>Grading Scale</i> | <i>Descriptor</i>               |
|----------------------|---------------------------------|
| 90-100               | Outstanding (O)                 |
| 85-89                | Very Satisfactory (VS)          |
| 80-84                | Satisfactory (S)                |
| 75-79                | Fairly Satisfactory (FS)        |
| Below 75             | Did Not Meet Expectation (DNME) |

**Table 2a. Level of Reading Performance After the Implementation of Teach All Groups Together**

| STOR<br>Y | Reading Skills   |    |                |    |           |    |            |    |
|-----------|------------------|----|----------------|----|-----------|----|------------|----|
|           | Vocabulary Skill |    | Noting Details |    | Inferring |    | As a Whole |    |
|           | Mea<br>n         | DR | Mea<br>n       | DR | Mea<br>n  | DR | Mea<br>n   | DR |
| 1         | 95.33            | O  | 87.78          | VS | 84.78     | VS | 89.30      | VS |
| 2         | 89.44            | VS | 96.44          | O  | 82.44     | S  | 89.44      | VS |
| 3         | 94.11            | O  | 92.67          | O  | 86.00     | VS | 90.92      | O  |
| 4         | 89.44            | VS | 92.89          | O  | 90.56     | O  | 90.96      | O  |
| 5         | 90.67            | O  | 93.33          | O  | 81.44     | S  | 88.48      | VS |

*Norms:*

| <i>Grading Scale</i> | <i>Descriptor</i>      |
|----------------------|------------------------|
| 90-100               | Outstanding (O)        |
| 85-89                | Very Satisfactory (VS) |

|          |                                        |
|----------|----------------------------------------|
| 80-84    | <i>Satisfactory (S)</i>                |
| 75-79    | <i>Fairly Satisfactory (FS)</i>        |
| Below 75 | <i>Did Not Meet Expectation (DNME)</i> |

**Table 2b. Level of Reading Performance After the Implementation of Teach one grade while others work**

| STORY | Reading Skills    |    |                |    |           |    |            |    |
|-------|-------------------|----|----------------|----|-----------|----|------------|----|
|       | Very Satisfactory |    | Noting Details |    | Inferring |    | As a Whole |    |
|       | Mean              | DR | Mean           | DR | Mean      | DR | Mean       | DR |
| 1     | 79.00             | FS | 88.00          | VS | 77.78     | FS | 81.59      | S  |
| 2     | 84.78             | VS | 91.56          | O  | 93.00     | O  | 89.78      | O  |
| 3     | 80.11             | S  | 86.67          | VS | 77.78     | FS | 81.52      | S  |
| 4     | 77.78             | FS | 83.56          | S  | 91.70     | O  | 84.37      | S  |
| 5     | 77.78             | FS | 91.56          | O  | 90.60     | O  | 86.67      | VS |

*Norms:*

| <b>Grading Scale</b> | <b>Descriptor</b>                      |
|----------------------|----------------------------------------|
| 90-100               | <i>Outstanding (O)</i>                 |
| 85-89                | <i>Very Satisfactory (VS)</i>          |
| 80-84                | <i>Satisfactory (S)</i>                |
| 75-79                | <i>Fairly Satisfactory (FS)</i>        |
| Below 75             | <i>Did Not Meet Expectation (DNME)</i> |

**Table 3a. T-test showing Significant Differences between the Pre-test and Post-test Performance of the Respondents along Strategy 1**

| Reading Skills   | Stories |         |         |         |         |
|------------------|---------|---------|---------|---------|---------|
|                  | Story 1 | Story 2 | Story 3 | Story 4 | Story 5 |
| Vocabulary Skill | 4.391** | 3.605** | 3.363** | 1.956*  | 2.808*  |
| Noting Detail    | 0.211   | 2.447*  | 3.992** | 4.700** | 2.111*  |
| Inferring        | 0.392   | 1.319   | 2.302*  | 2.333*  | 1.389   |
| Overall          | 2.438*  | 2.254*  | 4.621** | 5.108*  | 4.023** |

*Legend: \* - 0.05 level of significance*

*\*\* - 0.01 level of significance*

**Table 3b. T-test showing Significant Differences between the Pretest and Post-test Performance of the Respondents along Strategy 2**

| Reading Skills   | Stories |         |         |         |         |
|------------------|---------|---------|---------|---------|---------|
|                  | Story 1 | Story 2 | Story 3 | Story 4 | Story 5 |
| Vocabulary Skill | 1.334   | 3.394** | 0.124   | 0.159   | 0.236   |
| Noting Detail    | 0.184   | 2.486*  | 2.777*  | 1.133   | 1.352   |
| Inferring        | 0.889   | 0.334   | 1.039   | 2.579*  | 4.584** |
| Overall          | 0.026   | 3.127** | 1.971*  | 2.682*  | 3.199** |

*Legend: \* - 0.05 level of significance*

*\*\* - 0.01 level of significance*

**Table 4. T-test showing Significant Differences on the Post-test Performance of the Respondents between Strategies**

| Reading Skills   | Stories |         |         |         |         |
|------------------|---------|---------|---------|---------|---------|
|                  | Story 1 | Story 2 | Story 3 | Story 4 | Story 5 |
| Vocabulary Skill | 5.291** | 0.831   | 2.982** | 3.162** | 3.794** |
| Noting Detail    | 0.045   | 1.135   | 1.192   | 1.923*  | 0.314   |
| Inferring        | 1.491   | 3.015** | 2.414*  | 0.173   | 1.930*  |
| Overall          | 3.976** | 0.132   | 3.833** | 3.485** | 0.606   |

*Legend: \* - 0.05 level of significance*

*\*\* - 0.01 level of significance*

## Discussion

The pretest results (Table 1) revealed that the nine Grade 5 and Grade 6 multigrade learners at Apao Elementary School exhibited moderate overall reading performance across five stories, with whole-mean scores ranging from Satisfactory (around 81%) to Outstanding (around 89–90%). Vocabulary was consistently the weakest skill (often Fairly Satisfactory to Satisfactory, e.g., 77–84%), while noting details and inferential skills showed greater variability and strength on some stories (frequently Very Satisfactory to Outstanding). This baseline highlighted challenges in vocabulary acquisition amid diverse learner needs in the multigrade setting, aligning with cited studies such as He and Deocampo (2023) on vocabulary's foundational role in comprehension and Fitriani and Zulpa (2024) on common difficulties in vocabulary, details, and inferences.

Post-intervention results demonstrated significant gains for both differentiated strategies using graphic organizers and story maps. For Strategy 1 (Teach all groups together) (Table 2a), post-test means were consistently high (Very Satisfactory to Outstanding, 88.48%–90.96% overall), with strong improvements especially in vocabulary (often Outstanding, e.g., 89–95%) and noting details. Strategy 2 (Teach one grade while others work) (Table 2b) also yielded

acceptable gains but with more variability and generally lower means than Strategy 1. Paired t-tests (Tables 3a/3b) confirmed statistically significant pretest-to-posttest improvements ( $p < 0.05$  or  $p < 0.01$ ) in multiple skills and stories for both strategies, though Strategy 1 showed more consistent and broader significance across vocabulary and overall performance. Independent t-tests (Table 4) further established that Strategy 1 produced significantly higher post-test means than Strategy 2 in most stories, particularly for vocabulary and integrated comprehension. These findings support the hypotheses of significant differences pre- vs. post-implementation and between strategies, corroborating theoretical frameworks like Tomlinson's differentiated instruction, Vygotsky's ZPD/scaffolding via graphic organizers/story maps, and prior research (e.g., Walpole & McKenna, 2007; Castillo et al., 2024) on visual tools and collaborative approaches enhancing multigrade reading outcomes.

Overall, the results affirm differentiated instruction's effectiveness in multigrade classrooms, with Strategy 1 (whole-group collaborative teaching) emerging as superior for equitable skill development and vocabulary gains, while both strategies aided inferential skills through scaffolding. This provides evidence-based support for optimizing reading instruction in similar rural Philippine settings.

## Conclusion

The study concluded that differentiated instruction, supported by graphic organizers and story maps, is an effective approach for improving reading performance among multigrade learners in vocabulary, noting details, and inferential skills, with both strategies yielding statistically significant gains from pretest to posttest. Strategy 1 (teaching all groups together) emerged as the most successful overall, particularly for vocabulary development and equitable skill improvement, due to enhanced peer collaboration, teacher modeling, and whole-class scaffolding that benefited learners of varying abilities. Strategy 2 (teaching one grade while others work independently) proved viable, especially for strengthening inferential skills through structured independent practice and focused instruction. Both methods effectively addressed diverse needs in the multigrade classroom by leveraging visual tools for organization, retention, and higher-order thinking, affirming the value of flexible differentiated strategies in supporting reading comprehension.

The study recommends that multigrade teachers prioritize Strategy 1 (teaching all groups together) as the primary approach for introducing new reading materials to foster collaboration, shared vocabulary, and equitable skill development using graphic organizers and story maps, while employing Strategy 2 (teaching one grade while others work independently) for reinforcement and targeted inferential practice through scaffolded activities. A balanced weekly schedule combining both strategies, along with ongoing individual progress monitoring, is advised to maximize benefits. Teachers should receive targeted training on differentiated instruction, visual scaffolding tools, and collaborative lesson development, supported by DepEd through in-service programs, reduced student-teacher ratios, additional paraprofessionals, and enhanced PHIL-IRI interventions. Curriculum developers are encouraged to create ready-to-use graphic organizers, story maps, modular toolkits, and contextual reading packages tailored for multigrade settings. Finally, the study calls for replicating the research with larger samples,



longer durations, follow-up assessments for sustainability, expansion to other subjects, and mixed-methods studies exploring teacher/student perceptions and additional variables (e.g., gender, prior skills, family literacy) to build broader evidence-based practices.

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